

(12) United States Patent

Yen et al.

(45) Date of Patent:

(10) Patent No.:

US 9,410,599 B2

Aug. 9, 2016

(54) ROLL CONTROL DEVICE FOR A VEHICLE **CURTAIN**

(71) Applicant: MACAUTO INDUSTRIAL CO., LTD.,

Tainan City (TW)

Inventors: Hung-Ming Yen, Tainan (TW); Paul (72)

Lin, Tainan (TW)

Assignee: MACAUTO INDUSTRIAL CO., LTD.,

Tainan (TW)

Subject to any disclaimer, the term of this Notice:

patent is extended or adjusted under 35

U.S.C. 154(b) by 39 days.

- (21) Appl. No.: 14/586,953
- Filed: Dec. 30, 2014 (22)
- (65)**Prior Publication Data**

Jul. 30, 2015 US 2015/0211605 A1

(30)Foreign Application Priority Data

Jan. 24, 2014 (TW) 103201603 U

(51) **Int. Cl.**

F16H 57/08	(2006.01)
F16H 1/28	(2006.01)
E06B 9/42	(2006.01)
E06B 9/68	(2006.01)
E06B 9/60	(2006.01)
E06B 9/80	(2006.01)
B60J 1/20	(2006.01)

(52) U.S. Cl.

CPC F16H 1/2863 (2013.01); B60J 1/2033 (2013.01); E06B 9/42 (2013.01); E06B 9/60 (2013.01); E06B 9/68 (2013.01); E06B 9/80 (2013.01); E06B 2009/807 (2013.01); F16H *57/08* (2013.01); *F16H 57/082* (2013.01)

(58) Field of Classification Search

CPC F16H 57/08; F16H 57/082; B60J 1/2033; E06B 9/60; E06B 9/80; E06B 9/68; E06B See application file for complete search history.

References Cited (56)

U.S. PATENT DOCUMENTS

3,472,083 A *	10/1969	Schnepel B25B 17/00	
7,758,466 B2*	7/2010	475/270 Kato B60K 17/346	
		475/248	;
(Continued)			

FOREIGN PATENT DOCUMENTS

JР DE 10049564 A1 * 4/2001 F16H 1/28

Primary Examiner — Roger Pang

(74) Attorney, Agent, or Firm — Rabin & Berdo, P.C.

ABSTRACT

A roll control device for a vehicle curtain has a unidirectional transmission device and a damping assembly. The unidirectional transmission device has a gear base, multiple planet gears and a transmission wheel. The gear base has a connecting segment, a driving segment formed on a side of the connecting segment and an axle. The driving segment has multiple receiving recesses and multiple limiting segments. The planet gears are mounted rotatably and slidably in the receiving recesses respectively and are selectively limited by the limiting segments respectively to rotate with the gear base. The transmission wheel is rotatably combined with the gear base, encloses the planet gears and has a transmission gear. The damping assembly is connected with the unidirectional transmission device and has a driven gear and a damper. The driven gear engages the transmission gear on the transmission wheel. The damper is connected with the driven gear.

11 Claims, 7 Drawing Sheets

